United States Department of the Interior

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November 30, 2007

Memorandum

To: District Manager, California Desert District, Bureau of Land Management, Moreno Valley, California

From: Field Supervisor, Ventura Fish and Wildlife Office, Ventura, California

Subject: Amendment to the Biological Opinion for the California Desert Conservation Area Plan [West Mojave Plan] (6840(P) CA-063.50) (1-8-03-F-58)

This memorandum transmits an amendment to our biological opinion for the amendments to the California Desert Conservation Area Plan described in the West Mojave Plan (U.S. Fish and Wildlife Service [Service] 2006a) ("Biological Opinion"). Specifically, we are amending the incidental take statement for the federally threatened desert tortoise (*Gopherus agassizii*) contained in the referenced biological opinion.

In the analysis contained in our Biological Opinion, we determined that relatively few desert tortoises were likely to be killed or injured as a direct result of the Bureau of Land Management's (Bureau) approval of the record of decision for the West Mojave Plan. In the incidental take statement issued with the Biological Opinion, we stated that we could not quantify the precise numbers of desert tortoises that may be killed or injured as a result of the actions that the Bureau authorizes through approval of the West Mojave Plan amendments to the California Desert Conservation Area Plan.

We are amending the incidental take statement to clarify our anticipated level of incidental take by providing specific estimates of the level of incidental take that we anticipate is likely to occur, along with our rationale for those specific estimates. Quantifying the amount or extent of incidental take anticipated from the activities covered by this incidental take statement is extremely difficult given the large size of the action area, the patchy distribution of desert tortoises, the nature of the activities, and the unpredictability of when these activities are likely to cause injury or mortality to desert tortoises. Additionally, finding carcasses and assigning a cause of death is problematic over such large areas and in the presence of numerous scavengers that are likely to find dead desert tortoises soon after they die. Due to these inherent difficulties, we considered different methodologies and approaches to quantify the anticipated level of incidental take. We have determined that the methodologies used in this amendment constitute a reasonable approach based on our analysis of the best scientific and commercial data available, including information regarding the amount of area potentially affected by various uses and the likely intensity of the uses, and information available from line-distance sampling.

To more specifically determine the number of desert tortoises that are anticipated to be killed or injured by various casual uses and livestock grazing, we have supplemented the analysis contained in the prior incidental take statement for the Biological Opinion with various methodologies and analyses. To aid in determining the level of anticipated incidental take, we used the results of line-distance sampling throughout the range of the desert tortoise to estimate the densities of desert tortoises within the action area. The Service published the results of the first 5 years of line-distance sampling after the Biological Opinion was issued. The information presented in this amendment does not, in any way, alter the conclusions we reached in our Biological Opinion; these methodologies and analyses serve to further quantify the number of desert tortoises that we anticipate will be killed or injured as a result of various casual uses and livestock grazing within the action area. The amount or extent of anticipated take from such uses was previously expressed in a more qualitative manner in the Biological Opinion, and these quantitative assessments fall squarely within the scope of the qualitative analysis contained in the Biological Opinion. Furthermore, although the line-distance sampling data provided more detailed density information, it does not reveal any new or different effects of the action that may affect the listed species or critical habitat within the action area that would indicate that re-initiation of consultation was required because the inclusion of this information simply associates numerical values with the more qualitative assessment presented in the Biological Opinion. Therefore, because this amended incidental take statement only serves to clarify our previous analyses in the Biological Opinion, rather than substantively change or alter the analyses, re-initiation of formal consultation, as described at 50 *Code of Federal Regulations* § 402.16, is not required.

In addition, we have revised the incidental take statement to include additional reasonable and prudent measures and terms and conditions to minimize and monitor the level of incidental take from authorized activities, and to provide the Bureau with a measurable threshold to indicate when the anticipated level of take has been exceeded and it is required to re-initiate formal consultation.

We have re-organized the original incidental take statement to some degree to better integrate the results of our work. Please replace the incidental take statement transmitted with the January 9, 2006 biological opinion for the California Desert Conservation Area Plan (West Mojave Plan; Service 2006a) with the following revised incidental take statement.

INCIDENTAL TAKE STATEMENT

Parish's Daisy, Cushenbury Milk-vetch, and Lane Mountain Milk-vetch

Section 9 of the Act does not address the incidental take of listed plant species. Because the Act does not address the take of listed plant species, this Biological Opinion does not contain an incidental take statement, reasonable and prudent measures, or terms and conditions for these species. The Bureau should refer to section 9(a)(2) of the Act and 50 *Code of Federal Regulations* §§ 17.61 and 17.71 for prohibitions regarding listed plant species.

Desert Tortoise

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the agency is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement and occurs as a result of the action as proposed by the Bureau.

The reasonable and prudent measures and their associated terms and conditions described below are non-discretionary and must be undertaken by the Bureau or made binding conditions of any authorization provided to third parties, as appropriate. The Bureau has a continuing duty to regulate the activities covered by this incidental take statement. If the Bureau fails to assume and implement the terms and conditions of the incidental take statement or to make them enforceable terms of permits or other authorizations, as appropriate, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Bureau must annually report the progress of its actions and their impact on the species to the Service as specified in the incidental take statement (50 *Code of Federal Regulations* 402.14(i)(3)).

The California Desert Conservation Area Plan and West Mojave Plan describe numerous programs under which the Bureau will need to make specific decisions with regard to future actions. Although we have evaluated the general nature of the effects of these actions, both negative and positive, on listed species, we cannot fully assess the potential effects of specific future actions under these programs because information on the location, timing, nature, and other aspects of the actions is not available at this time. Consequently, we cannot provide an exemption from the prohibitions against take, as described in section 9 of the Act, for the incidental take that may result from these future actions that require separate review and authorization by the Bureau. We will review the effects of those actions and, through the section 7(a)(2) consultation process, issue incidental take statements in the future, if appropriate, when the Bureau requests formal consultation on specific discretionary actions.

Given this limitation, this incidental take statement provides an exemption from the prohibitions against take only for the incidental take of desert tortoises that is likely to result from the programmatic approval of livestock grazing within the action area and from casual use activities

that are authorized by the approval of the West Mojave Plan amendments to the California Desert Conservation Area Plan.

We cannot quantify the exact numbers of desert tortoises that may be incidentally killed or injured as a result of the actions that the Bureau authorizes through approval of the West Mojave Plan amendments to the California Desert Conservation Area Plan, because of the large size of the action area, the patchy distribution of desert tortoises within the western Mojave Desert, the nature of the activities, and the unpredictability of when these activities are likely to cause injury or mortality to desert tortoises. Additionally, finding carcasses and assigning a cause of death are problematic over such large areas and in the presence of numerous scavengers that are likely to find dead desert tortoises soon after they die. Taking these limitations into consideration, and as discussed in more detail in the "Amount or Extent of the Anticipated Incidental Taking" section below, we provide the following quantification of the anticipated amount or extent of incidental take resulting from the identified activities.

Estimation of the Number of Desert Tortoises in the Action Area

Determining the number of desert tortoises that reside in the action area is difficult, considering the vast area involved, the patchy distribution of individuals, the relatively small size of the animals, and the fact that they spend most of their lives underground. The Service's (and other agencies') strategy for conserving the desert tortoise acknowledges the fact that it is not distributed evenly across the landscape; this uneven distribution stems from natural differences in habitat types and quality, including marginal habitat at the edges of the range, and human-induced changes in habitat. The Service's conservation strategy for the desert tortoise is focused on, though not limited to, conserving desert tortoises that occur in the most robust aggregations on lands that we can reasonably expect to manage for the survival and recovery of the species. Since the listing of the desert tortoise, the Service and other agencies, including the Bureau, have identified these areas through the delineation of recovery units and desert wildlife management areas, and the designation of critical habitat.

The following sequence of events describes the evolution of various designations of the areas considered important for the conservation of the desert tortoise in California:

Draft Recovery Plan for the Desert Tortoise - 1993
The draft recovery plan (Service 1993) was developed by a recovery team of eight scientists from various fields pertinent to the conservation of tortoises; this team also solicited information from other personnel knowledgeable about desert tortoises. The draft recovery plan provides very general descriptions of where desert wildlife management areas should be located, with the final designations of such areas to be left to the land management agencies.

Final Critical Habitat Rule for the Desert Tortoise - 1994
The final rule designating critical habitat for the desert tortoise in 1994 states that "the areas recommended as (desert wildlife management areas [in the draft recovery plan]) were proposed by experts familiar with the species and its habitat based on the principles of conservation

biology ..." (page 5824, 59 Federal Register 5820). Based on this information, the Service delineated specific geographic areas that supported the key biological and physical attributes necessary to conserve desert tortoises.

Final Recovery Plan for the Desert Tortoise - 1994

The final recovery plan (Service 1994) stated that desert wildlife management areas [to be designated by the land management agencies] "must be located in areas with good desert tortoise habitat currently supporting a minimum of several hundred adult animals at a density of no fewer than 10 per square mile." Please see "Status of the Desert Tortoise and Its Critical Habitat - Relationship of Recovery Units, Distinct Population Segments, Desert Wildlife Management Areas, and Critical Habitat Units" section for a description of the process by which the Service developed recovery units and their relationship to desert wildlife management areas.

California Desert Conservation Area Plan Amendments – 2002, 2006

The Bureau developed bioregional plans, based in large part on the recovery units described in the final recovery plan, to integrate the implementation of the recovery plan's recommendations in coordination with its own land use guidelines. Within each bioregional plan, the Bureau designated desert wildlife management areas, as recommended in the final recovery plan to encompass the highest quality habitat and most robust aggregations of desert tortoises. In California, the Bureau also classified these desert wildlife management areas as areas of critical environmental concern, which allows the Bureau to establish management goals for specific resources in defined areas. These desert wildlife management areas consist of specific and defined locations within the California Desert Conservation Area and were based, in large part, on our critical habitat designation for the desert tortoise. The Bureau also incorporated input from the Service and California Department of Fish and Game into the designations of the desert wildlife management areas.

Therefore, the defined desert wildlife management areas were specifically developed to identify areas with the highest densities of desert tortoises. The Biological Opinion contains additional information on this topic; see the section entitled "Relationship of Recovery Units, Distinct Population Segments, Desert Wildlife Management Areas, and Critical Habitat Units."

Line-distance Sampling – 2001-2005

Line-distance sampling is described in the Biological Opinion. The results of sampling conducted within desert wildlife management areas and critical habitat from 2001 through 2005 indicated that desert tortoises occur at a density of approximately 16.4 individuals per square mile in the Western Mojave Recovery Unit (Service 2006b). The results presented in the referenced publication pertain to adult and sub-adult desert tortoises; smaller desert tortoises are difficult to detect using any form of sampling.

The Western Mojave Recovery Unit is within the planning area for the West Mojave Plan and includes Bureau, military, state and private lands. The planning area contains the entire Fremont-Kramer, Ord-Rodman, and Superior-Cronese Lake desert wildlife management areas

and critical habitat units, the entire Pinto Mountain Desert Wildlife Management Area, and a portion of the Pinto Mountain Critical Habitat Unit. The four desert wildlife management areas are generally located in the areas recommended in the recovery plan for the desert tortoise (Service 1994).

This density information does not alter the conclusions contained in the Biological Opinion because the analyses in the Biological Opinion generally distinguish between areas of relatively higher densities of desert tortoises within critical habitat and desert wildlife management areas designated by the Bureau and areas of lower densities outside these key habitats. The sampling was conducted within critical habitat and desert wildlife management areas where we considered most desert tortoises to reside. Consequently, the inclusion of this information simply associates numerical values with the more qualitative assessment presented in the Biological Opinion.

We estimate the density of desert tortoises within the desert wildlife management areas and critical habitat discussed in the Biological Opinion based on the average of the densities obtained from line-distance sampling conducted in the Western Mojave Recovery Unit over several years between 2001 and 2005 (Service 2006b). The densities of the areas surveyed during the line-distance sampling are highly unlikely to be uniform throughout desert wildlife management areas and critical habitat within the recovery unit. However, the estimates provided by line-distance sampling comprise the best available information on the densities of desert tortoises within these vast areas.

To derive the density of desert tortoises outside of desert wildlife management areas and critical habitat in the action area, we multiplied the average density of desert tortoises in the Western Mojave Recovery Unit by 0.1. We do not have extensive data on the density of desert tortoises in these areas; where data do exist (e.g., a Bureau study of desert tortoise density west of Highway 14 between Red Rock Canyon State Park and Highway 178 (Keith et al. 2005); various surveys of the eastern Antelope Valley, Victor Valley, and near the town of Rosamond), they were collected using methods other than line-distance sampling and are not comparable to the numbers obtained through the line-distance sampling conducted from 2001 through 2005. We consider areas outside of desert wildlife management areas and critical habitat to support lower densities of desert tortoise based in part on the fact that some of these areas are near the periphery of the range of the desert tortoise and naturally support fewer animals because habitat conditions are not as favorable as within desert wildlife management areas and critical habitat; we also base this consideration on the results of the various surveys conducted in these areas. In addition, urbanization and recreation likely have suppressed the density of desert tortoises in other areas. In some locations, both of these factors may be responsible for the reduced densities. Our professional opinion is that densities of desert tortoises outside of desert wildlife management areas and critical habitat are well below those within the boundaries of these areas and that estimating such densities at 10 percent of the higher density areas is a reasonable approximation.

Therefore, based on the results of the line-distance sampling data for the Western Mojave Recovery Unit summarized above, we estimate a density of 16.4 desert tortoises per square mile

within the desert wildlife management areas and critical habitat in the action area. We further estimate that the density of desert tortoises outside of desert wildlife management areas and critical habitat in the action area is 1.6 individuals per square mile; as discussed in the previous paragraph, we arrived at this estimate by using a value that is one-tenth of the estimate for within higher density areas.

We then derived the area, both within and outside of the boundaries of the desert wildlife management areas and critical habitat that is defined as desert tortoise habitat in the action area for the West Mojave Plan (see map 3-10 in Bureau et al. (2005)). Because of the scale of the landscape, we did not remove the acreage of areas that are unlikely to support densities of desert tortoises similar to those on areas of surrounding suitable habitat (e.g., higher and lower elevations, sandy areas), nor the acreage of areas that do not support any suitable habitat for desert tortoises (e.g., developed areas, dry lake beds). Using this methodology, we determined that, approximately 6,268 square miles of desert tortoise habitat occur within the action area. Of this total, approximately 2,383 square miles of desert tortoise habitat are located within desert wildlife management areas and critical habitat, and approximately 4,662 square miles of desert tortoise habitat are located outside of desert wildlife management areas and critical habitat. Because of the differences between the boundaries of critical habitat and desert wildlife management areas, we combined the areas that the two designations cover into one, to which we applied the "within desert wildlife management area and critical habitat" density. Note that the area of critical habitat outside of the desert wildlife management areas constitutes a very small percentage of the designated critical habitat.

We derived the estimated number of desert tortoises within the action area by multiplying the density of desert tortoises by the acreage of the habitat both within and outside the desert wildlife management areas and critical habitat. Based on these calculations, we estimate that approximately 39,081 desert tortoises reside within desert wildlife management areas and critical habitat in the western Mojave Desert, and approximately 6,216 desert tortoises occur within the action area outside of desert wildlife management areas and critical habitat. Based on these figures, we estimate that approximately 45,297 desert tortoises occur within the action area. Note that the densities determined by line-distance sampling are likely not uniform across the desert wildlife management areas and critical habitat in the recovery unit; we expect that densities vary greatly across this area. Additionally, as stated above, we did not remove the acreage of areas in the recovery unit that do not normally support desert tortoises, such as dry lake beds, areas of high elevation, and habitat that is highly disturbed. Finally, the estimates provided by line-distance sampling include only adult and sub-adult desert tortoises (Service 2006b). Consequently, we suggest that the number of desert tortoises is best viewed in the context of a comparison of potential differences between various areas rather than an absolute assessment of population numbers. For example, this methodology may underestimate the number of desert tortoises because individuals smaller than sub-adults are not detected during line-distance sampling. On the other hand, this methodology may overestimate the number of desert tortoises because we did not exclude areas of non-habitat from our calculations. However, we expect that, given the imprecision of the survey results, the overall patchiness of the distribution of desert tortoises, and the relatively small amount of non-habitat areas in relation to

suitable habitat, the inclusion of the acreage of non-habitat areas and the detection of only adult and sub-adult desert tortoises likely has little overall effect on the final estimates. Although numerous factors contribute to the imprecision of determining the number of desert tortoises in the action area, we consider the line-distance sampling data to be the best available scientific information, and have determined that the methodology used in this document is a reasonable approach to estimate desert tortoise densities within the action area.

Amount or Extent of the Anticipated Incidental Taking

To quantify the effects on the desert tortoise, we have estimated the numbers of individuals that we anticipate are likely to be killed and injured by activities that are authorized by the Bureau's approval of the West Mojave Plan amendments to the California Desert Conservation Area Plan in 2006. Consequently, this incidental take statement exempts incidental take for casual use, which was inherently authorized by the Bureau's approval of the record of decision for the West Mojave Plan amendments to the California Desert Conservation Area Plan. This incidental take statement also provides an exemption for incidental take associated with ongoing livestock grazing within the action area, because, although implementation of the grazing program requires the Bureau to make subsequent permitting decisions, the West Mojave Plan amendments to the California Desert Conservation Area Plan specifically describe how the Bureau will implement the program for ongoing livestock grazing and the effects of the program are fully analyzed in the Biological Opinion.

After estimating the number of desert tortoises within the action area, we evaluated the various casual uses and livestock grazing in relation to the number of desert tortoises, size of the recovery unit, and the management scenarios that will be implemented by the Bureau. To better focus our evaluation, we divided the casual uses into two groups based on the similarity of effect to the desert tortoise; these groups are recreation and mining at the casual use level (excluding effects that may result from associated vehicle use) and vehicle use on and alongside designated routes (including effects that may result from vehicle use associated with recreation and mining at the casual use level).

Livestock Grazing

Incidental take of desert tortoises may occur during activities associated with livestock grazing on public lands and intermingled non-federal lands within the action area. The Bureau's management prescriptions should ensure that desert tortoises do not die as a result of alterations in habitat that may result from grazing. The Biological Opinion provides a full description of the Bureau's management prescriptions for grazing (see description beginning on page 23 of Service (2006a)) and the potential effects of grazing on desert tortoises and their habitat (see discussion beginning on page 97 of Service (2006a)).

The following table provides information on the acreages of livestock allotments and our estimate of the number of desert tortoises that occur within each allotment.

Allotment	Desert Tortoise Habitat Where the Incidental Take Exemption Applies (in square miles) [1]	Estimated Number of Desert Tortoises Within Each Allotment[4]
Bissell [S]	4[3]	6
Boron [S]	17[3]	27
Cantil Common (North) [S]	318[2]	509
Cantil Common (South) [S]	17[2, 3]	27
Cantil Common (South) [S] within critical habitat	10[2, 3]	164
Hansen Common [C+S]	6	10
Johnson Valley [S]	185	296
Lava Mountain [S]	30	48
Lava Mountain [S] within critical habitat	3	49
Monolith-Cantil [S]	20[2]	32
Ord Mountain [C]	42	67
Ord Mountain [C] within critical habitat and desert wildlife management area	200	3,280
Rattlesnake Canyon [C]	20	32
Rudnick Common [C+S]	123	197
Shadow Mountain [S]	26[2, 3]	42
Shadow Mountain [S] within critical habitat	1	15
Spangler Hills [S]	108	173
Stoddard Mountain (East) [S]	135[2]	216
Stoddard Mountain (Middle) [S]	9[2, 3]	14
Tunawee Common [C+S]	3	5
Valley Well [H]	1	10
Walker Pass Common [C]	50	80
Totals	1,326	5,299

[1] Acreages are from the Biological Opinion unless otherwise noted. The acreage and the number of desert tortoises present for the Valley Well Allotment are from Service (2007d). We used GIS at the Ventura Fish and Wildlife Office to calculate the acreage of critical habitat and desert wildlife management area within the Ord Mountain Allotment. Some small differences in acreages may result from differences in GIS coverage and rounding of numbers.

[2] See map in Service (2006a).

[3] Incidental take exemption applies only to public lands in these allotments.

[4] We estimated the number of desert tortoises within each allotment by multiplying the estimated density for the general area by the acreage of the allotment (accounting for differences in the

density estimates for areas within and outside of desert wildlife management areas and critical habitat).
C, C+S, S, H These letters refer to the type of livestock that graze each allotment (cattle, cattle and sheep, sheep, horses, respectively).

No data exist on the frequency at which cattle may trample desert tortoises. We are aware of two instances where trampling by cattle definitely killed desert tortoises and an additional occurrence where trampling by cattle was the likely cause of death. Boarman (2002) notes the "paucity of documentation" of desert tortoises being killed by livestock and observes that "(s)heep and cattle may not step on (desert) tortoises because they are very cautious of stepping on uneven ground (rocks, bushes, etc.) for fear of losing their footing."

In general, we anticipate that the likelihood of sheep trampling desert tortoises may be greater because of the manner in which they graze; that is, they graze in large bands and generally remain very close to one another. We have, however, no recorded instances of sheep trampling desert tortoises. In a study using models of Styrofoam desert tortoises, sheep trampled approximately 20 percent of the juvenile-sized models, 3 percent of the models of sub-adults, and 2 percent of the models of adults (Tracy 1996 in Boarman 2002). This study seems to support our premise that smaller desert tortoises are likely more vulnerable, possibly because they are more difficult to see.

The amount of trampling that might occur is related to the density and number of desert tortoises, the size of the allotment, and the stocking rate of livestock. The acreages of desert tortoise habitat and the allotments remain constant over time. The number and density of desert tortoises change; in general, however, these changes occur fairly slowly over time. The number of livestock can vary greatly, depending on stocking rates. Few head of cattle will generally be present on an allotment at any given time because of the Bureau's management prescriptions and the fact that the amount of forage in the desert does not support large numbers; for example, between 1990 and 2003, the most cattle that were present on the 242-square mile Ord Mountain Allotment was 385 (Service 2006a). Because the Bureau will not allow temporary non-renewable grazing permits below 4,000 feet in elevation in desert wildlife management areas (Service 2006a) as a result of the West Mojave Plan amendments to the California Desert Conservation Area Plan, cattle are highly likely to be present at densities lower than those observed previously. Sheep graze in large bands; however, the Bureau has prohibited sheep grazing within desert wildlife management areas and has limited the number of adult sheep in a band to 1,600 individuals (Service 2006a), with the number of individuals in a band changing during the course of the season as lambs are removed and bands combined. Therefore, livestock density may be greatly variable over time, but overall is considered low in relation to the size of the grazing allotments.

The most important variable to consider when estimating the anticipated incidental take that may result from livestock grazing is the density of desert tortoises within the allotments. Desert tortoises are more likely to be trampled in areas where they occur at higher densities. This probability is simply a function of the fact that livestock are more likely to encounter desert

tortoises when desert tortoises are more common. In total, only approximately 215 square miles of the approximately 2,383 square miles within desert wildlife management areas and critical habitat in the action area would be grazed. The majority of this grazed area would be within the Ord Mountain Allotment (approximately 200 square miles); the Valley Well Allotment and small portions of the Cantil Common, Lava Mountain, and Shadow Mountain allotments within critical habitat and/or a desert wildlife management area would be grazed. Consequently, we expect that more desert tortoises are likely to be trampled within the portion of the Ord Mountain Allotment that is within a desert wildlife management area and critical habitat than elsewhere in the action area. Given the number of desert tortoises we expect are present (estimated at 3,526 individuals), the size of the allotments within desert wildlife management areas and critical habitat, the Bureau's management prescriptions (described in the "Description of the Proposed Action – Amendment 8, Adoption of Standards and Guidelines for Management of Grazing" section of the Biological Opinion), and the low likelihood that cattle will trample desert tortoises, we anticipate that no more than 3 individuals are likely to be killed or injured in any given 12-month period as a result of livestock grazing within the 5 allotments discussed in this paragraph.

The other allotments in the action area are located outside of desert wildlife management areas and critical habitat. Based on our calculations of the amount of desert tortoise habitat and the number of desert tortoises in the allotments other than those discussed in the previous paragraph, we estimate that approximately 1,778 individuals occur on the remaining 1,111 square miles of desert tortoise habitat, outside of desert wildlife management areas and critical habitat, that may be grazed in the action area. For this reason, we anticipate that desert tortoises are far less likely to encounter livestock and that no more than 2 individuals are likely to be killed or injured as a result of livestock grazing in any given 12-month period in all allotments or portions of allotments that lie outside of desert wildlife management areas or critical habitat.

Therefore, based on the considerations and analysis discussed above, we anticipate that no more than 5 desert tortoises are likely to be taken, in the form of injury or mortality, in the action area as a result of livestock grazing in any given 12-month period. This incidental take statement exempts incidental take resulting from livestock grazing only on the lands specified in the table above.

Casual Use - Recreational Use and Mining

Incidental take of desert tortoises may occur through casual use, including mining at this level and recreation (which includes but is not limited to hiking and equestrian use), wherever such activities are authorized within the approximately 6,268 square miles of desert tortoise habitat within the action area. Because of the guidelines in the California Desert Conservation Area Plan, vehicles cannot be operated off roads as part of the casual use provisions of the mining regulations within habitat of the desert tortoise on Class C, L, M, and some I lands. Consequently, any mining that is conducted under the casual use provisions can only involve equipment that is transported by hand to work sites; this limitation would likely limit virtually all casual use mining activities to near designated routes within habitat of the desert tortoise. For this discussion, we are not considering the incidental take that may occur as a result of any

vehicle use associated with the identified casual uses. Incidental take resulting from the use of vehicles in connection with these activities is discussed below in the "Casual Use – Vehicles" section.

We have no records of desert tortoises being killed or injured as a result of these casual recreational activities, or by persons operating under the casual use provisions of the mining regulations. Similar to livestock grazing discussed above, horses will likely avoid stepping on desert tortoises. People engaging in recreational activities, such as hiking, or casual use mining activities will also avoid trampling tortoises. We expect that mortality from these casual use activities occurs at a low level and that smaller desert tortoises would be most at risk because they are more difficult to detect and avoid. In addition, by their nature, these recreational activities generally do not cause the removal of desert tortoise habitat; however, in a few instances, casual use mining has resulted in the disturbance of minor amounts of habitat. We do not believe that such potential habitat disturbance would result in incidental taking of desert tortoises.

No data exist on the intensity or distribution of these activities on a widespread basis throughout the desert, although we believe these activities are generally low in intensity and scattered over large areas. The general pattern of use of wild lands is that the vast majority of recreation occurs fairly close to routes of travel. This tendency may be even more pronounced in the desert because of the harshness of the terrain and the difficulty in carrying the large amounts of water that are necessary to survive; therefore, desert tortoises that reside farther from routes of travel would be at less risk. As is the case with the intensity or distribution of these human activities, we do not have data on the precise distribution of desert tortoises (particularly smaller individuals) across the landscape.

Because of the nature of the activities and the location where most of these activities occur, we expect that few desert tortoises would be killed or injured during casual use mining and casual use recreational activities (e.g., equestrian use and hiking). Therefore, in consideration of the fact that the action area contains approximately 6,268 square miles of habitat for the desert tortoise, and based on the reasons presented previously in this incidental take statement and our best professional judgment in light of the best available information, we anticipate that no more than 6 desert tortoises are likely to be taken, in the form of injury or mortality, in the action area in any given 12-month period as a result of these casual uses.

Casual Use - Vehicles

Incidental take of desert tortoises may occur through casual use, in the form of operating vehicles in an authorized manner, within the boundaries established for the West Mojave Plan. We have no quantitative data on how many desert tortoises are killed and injured by vehicle use on open and limited routes. Many factors, such as the season, weather, and food availability, govern activities levels in desert tortoises. Human use of the desert also varies seasonally. We cannot predict when desert tortoises crossing a route will encounter a vehicle. We also cannot predict the outcome of such encounters. In many cases, the users of vehicles likely observe the desert

tortoise and allow it to pass safely; in other cases, they may fail to see the desert tortoise and crush it.

We conducted an informal survey in which we asked several biologists how many desert tortoises they had found dead on unpaved roads, which would include routes designated by the Bureau and county-maintained roads. All of these biologists have worked extensively on desert tortoises in California as consultants or agency staff for many years. In general, most of the biologists had observed few dead desert tortoises on unpaved roads (e.g., none in 17 years [2 responses], approximately 10 in 30 years, 3 in 7 years); the highest rate of observed mortality was approximately 6 in 12 years (Bransfield 2006). We are also aware of one situation in which three desert tortoises seem to have been killed along a relatively short reach of road in a single weekend (Jones 2006). Because of the informal nature of the survey (i.e., the responses were from memory, rather than a detailed re-examination of field notes), the biologists could not state whether the carcasses they observed were on roads that are maintained by counties or those designated as open by the Bureau. Roads maintained by counties are generally maintained to facilitate vehicle use at moderate speeds, in contrast to most of the Bureau's routes, which are not maintained.

The following tables depict the amount of open and limited routes within the action area, the areas available for stopping, parking, and camping, and the number of desert tortoises we estimate may be within areas where a limited number of individuals may be injured or killed by vehicle use on and adjacent to routes that are designated as open or limited. Shaded areas of the tables represent combinations of factors that do not occur in the California Desert Conservation Area. For example, within desert wildlife management areas, vehicles are not permitted beyond 50 feet of the centerline of routes; consequently, we have shaded the box where "within desert wildlife management area" and "area within 300 feet of centerline of routes" intersect.

Vehicle Use within Desert Tortoise Habitat within the Action Area (Western Mojave Recovery Unit) [1]

	Open and Limited Routes (miles) [1,2]	**Previously Disturbed Areas Next To Routes [2]**	**Area Within 50 Feet of Centerline of Routes (square miles) [2]**	**Area Within 300 Feet of Centerline of Routes (square miles)**
Within Desert Wildlife Management Areas and Critical Habitat	2,231	No data available	42 [3]	
Outside Desert Wildlife Management Areas and Critical Habitat	3,233			367 [3]

KEY:
[1] We combined the mileages for limited and open routes because the limited routes comprise a very minor portion of the total.
[2] Unless otherwise noted, all mileages and acreages are from Service (2006a).
[3] To estimate these acreages, we multiplied the length of the routes within the area by 100 or 600 feet (for 50 or 300 feet on both sides of the route) and converted the result to square miles. These acreages likely overestimate the area in proximity to routes of travel for two reasons. First, in some cases, an area may be within 50 or 300 feet of two routes of travel; such areas are included twice in our calculations because we were not able to eliminate this overlap. Second, large areas adjacent to the designated routes are not accessible to many vehicles because of steep or rugged terrain or dense vegetation or because they border wilderness and other closed areas, where vehicles are prohibited from leaving the designated route.

Number of Desert Tortoises That May Reside Adjacent to Routes of Travel

	Open and Limited Routes	Previously Disturbed Areas Next To Routes	Within 50 Feet of the Centerline of Routes	Within 300 Feet of the Centerline of Routes
Within Desert Wildlife Management Areas and Critical Habitat	0[1]	0[1]	689[2]	
Outside Desert Wildlife Management Areas and Critical Habitat	0[1]			587[2]

KEY:
[1] Although some desert tortoises may reside in such areas, if the amount of disturbance is not extensive, we anticipate that the number is so low that it is not measurable at the scale of the action area. Desert tortoises will cross these areas but likely spend less time there than in areas with suitable habitat.
[2] This number is likely an overestimate of the number of desert tortoises because the acreage on which we based our calculations includes a portion of the route, where few, if any, individuals reside, and the acreage we used in the calculation is an overestimate; see footnote 3 of the previous table for an explanation of the acreage.

We expect that few, if any, desert tortoises reside within the boundaries of open and limited routes; some individuals may construct burrows in the berms alongside of routes. If the amount of disturbance in 'previously disturbed areas' is not extensive, desert tortoises may use burrows in these areas, although given their lack of cover, annual plants, and appropriate burrowing substrate, we expect that, at most, few individuals would reside in such areas. We expect that desert tortoises will enter these areas to forage and drink (if water is available, such as after rain

storms), and to traverse them to other areas of more favorable habitat; however, in general, we expect that desert tortoises spend little time in the roads and adjacent disturbed areas. We anticipate that the number of animals residing in these areas is so low that it is not measurable at the scale of the action area. The route network within the desert wildlife management areas includes approximately 6 miles of navigable washes. We have no data regarding the number of desert tortoises that may reside in the washes; the number of desert tortoises within the washes would vary greatly, depending on the size of the wash, its substrates, and vegetation. Because of the limited amount of wash area that is included in the route network, we expect that few desert tortoises reside within the banks of these areas, compared to the remainder of the desert wildlife management areas. As with the routes that are located outside of washes, we expect that desert tortoises will enter the washes to forage, drink, and move about.

We anticipate that limited routes will contribute a negligible amount of incidental take to the total because these routes comprise a very minor part of the route network and generally receive less use; consequently, desert tortoises are less likely to be encountered on these routes. We acknowledge that the rates of injury or mortality would likely be different for areas that are more or less accessible (to both vehicles and desert tortoises), but we have no data upon which to base such differentiation. Also, mortality and injury rates likely occur at a much lower rate for previously disturbed areas because we expect that desert tortoises would be much less likely to be encountered in such areas, given their lack of cover, annual plants, and appropriate burrowing substrate; additionally, because these areas generally do not support dense growths of plants, desert tortoises would be more visible and be less likely to be crushed than in undisturbed areas. Finally, many other variables, such as weather, visibility along the route, movement patterns of desert tortoises, and behavior of vehicle users will affect the encounter rate of desert tortoises and vehicles and the outcome of these encounters (e.g., the encounter rate is likely to be higher during the spring and fall because use is generally heavier during these seasons and desert tortoises are most likely to be moving longer distances at these times of the year).

Therefore, based on our best professional judgment in light of the best available information and reasoning presented above, including the interviews with knowledgeable biologists who have worked in the desert for many years, and information we have available regarding the mileage of open and limited routes and the estimated density of desert tortoises, we anticipate that no more than 8 desert tortoises are likely to be taken, in the form of injury or mortality, in the action area in any given 12-month period as result of vehicle use along open and limited routes.

Summary

In summary, we conclude that 5 desert tortoises may be incidentally taken as a result of livestock grazing, 6 as a result of casual use activities (excluding incidental take as a result of associated vehicle use), and 8 as a result of vehicle use associated with casual use activities. We arrived at these estimates by considering the interrelationship of factors such as the likely intensity and frequency of the involved activities, the area over which the activities may occur, and the estimated density of desert tortoises. For example, an activity of higher intensity that occurs

infrequently in a relatively small area may yield a lower level of estimated incidental take than a less intense activity that occurs constantly over a wide area.

Therefore, we anticipate that 19 desert tortoises per year are likely to be taken, in the form of injury or mortality, as a result of the activities described in the Biological Opinion. We consider this number to be within the scope of the "relatively few" desert tortoises we anticipated would be killed or injured in the Biological Opinion, as it represents less than one-tenth of 1 percent of the desert tortoise population estimated to reside within the action area. The loss of these individuals is not likely to appreciably reduce the likelihood of the desert tortoise's ability to survive and recover.

We also consider the incidental take exemption to apply to casual use activities that may occur on any lands that the Bureau may acquire, provided that the activities resulting in the incidental take are in compliance with the Bureau's management direction provided by the California Desert Conservation Area Plan, as amended, and analyzed herein.

Determining when Take is Exceeded

Detecting incidental take resulting from livestock grazing and casual uses is difficult due to the large action area, the nature of these uses, and the desert ecosystem; also, it is not possible for the Bureau to detect every instance of incidental taking of desert tortoise that may occur as a result of these activities. Therefore, through this amendment and the reasonable and prudent measures and terms and conditions that it includes, we have established a requirement for the Bureau to re-initiate formal consultation with the Service, pursuant to section 7(a)(2) of the Endangered Species Act, if 3 desert tortoises are found dead or injured in any 12-month period as a result of any activity or circumstance specifically related to casual use or livestock grazing, as described in the Biological Opinion, as amended by this incidental take statement. We believe the detection of the incidental take of 3 desert tortoises within a 12-month period resulting from these activities represents a reasonable indicator for determining when the anticipated level of incidental take described in this incidental take statement has been exceeded.

Effects of the Incidental Take on the Desert Tortoise

In the Effects of the Action section of the accompanying Biological Opinion, the Service determined that relatively few desert tortoises were likely to be killed or injured as a result of the activities for which incidental take is exempted in this incidental take statement, and that the resulting effects to the desert tortoise are not likely to result in jeopardy to the species. We have determined that the incidental take of no more than 19 individuals in any given 12-month period as a result of these activities is a reasonable quantification of the "relatively few" desert tortoises determined likely to be killed or injured in the Biological Opinion. Consequently, the anticipated level of incidental take, as described in this incidental take statement, is not likely to result in jeopardy to the species.

Relationship to Incidental Take Statements in Previous Biological Opinions

Through memoranda dated May 17, 1999, and August 3, 2000, the Service (1999b, 2000) extended the incidental take statements that were contained in previous biological opinions for sheep and cattle grazing in the California Desert Conservation Area until such time as the bioregional plans were completed. With the issuance of this Biological Opinion, this incidental take statement replaces those contained in previous biological opinions regarding livestock grazing for the western Mojave Desert.

This incidental take statement also replaces the incidental take statements contained in the biological opinions for route designation in the western Mojave Desert planning area (Service 2003b) and for management of the planning area described in the Rand Mountains – Fremont Valley Management Plan (Service 1993a). This Biological Opinion also supersedes the previous biological opinions for the Western Mojave Land Tenure Adjustment Project (Service 1990 and 1998; we re-iterate that, as stated in the later biological opinion, the incidental take statement contained in the 1990 biological opinion is no longer valid, and this incidental take statement does not exempt take related to the Western Mojave Land Tenure Adjustment Project).

The Biological Opinion and this memorandum do not alter the incidental take statements of other biological opinions issued to the Bureau for other specific actions affecting desert tortoises in the California Desert Conservation Area.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the incidental take of the desert tortoise that may result from livestock grazing and casual use activities as authorized by the adoption of the West Mojave Plan amendments to the California Desert Conservation Area Plan:

1. The Bureau must monitor its activities to ensure that the level of incidental take is commensurate with the analysis contained in the Biological Opinion.

2. The Bureau must offer educational materials on the desert tortoise and its conservation to increase public awareness within the West Mojave Plan Area regarding impacts to desert tortoise that may occur as a result of casual use associated with recreation and mining or other programs that it manages.

The Service's evaluation in the Biological Opinion of the effects of amending the California Desert Conservation Area Plan through the West Mojave Plan includes consideration of the measures developed by the Bureau to reduce the adverse effects of livestock grazing and casual use associated with recreation and mining on the desert tortoise. The Description of the Proposed Action section of the Biological Opinion describes these measures as part of the Bureau's proposed action. We also considered the management of livestock grazing that occurs under the Service's previous biological opinions, as modified by the Bureau's proposed action

described in the Biological Opinion. Any subsequent changes in the minimization measures proposed by the Bureau or in the conditions under which these activities occur may constitute a modification of the proposed action and may warrant re-initiation of formal consultation, as specified at 50 *Code of Federal Regulations* 402.16.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Bureau must comply with or ensure that any permittee complies with the following terms and conditions, which implement the reasonable and prudent measures described in the previous section. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:

   a. The Bureau must develop and implement a monitoring plan to determine the level of incidental take of desert tortoises associated with livestock grazing and casual uses in the action area. The monitoring plan must include a standardized mechanism for Bureau employees, contractors, permittees, and volunteers to report any observations of dead or injured desert tortoises to the Desert District office. The Desert District office must collect information obtained through the monitoring plan to include in the Bureau's annual report to the Service that is required by this incidental take statement and described in the "Reporting Requirements" section herein. The Bureau must also report any observation of the incidental take of desert tortoises associated with livestock grazing and casual uses in the action area to the Service as described in the "Disposition of Dead or Injured Desert Tortoises" section herein. At that time, the Service and the Bureau must review the circumstances surrounding the incident to determine whether any patterns of repeated authorized or unauthorized activities are occurring (e.g., use of an authorized area for stopping, parking, and camping where habitat is being degraded, development of unauthorized routes or the beginnings of a trash-dumping site, or desert tortoises are being struck by vehicles in particular portions of routes) that may indicate that additional protective measures are required. If, after completion of the review, the Service and Bureau agree that additional protective measures are required and can be implemented within the existing scope of the action, the Bureau must implement the agreed-upon measures within a reasonable time frame; if the corrective actions cannot be implemented within the scope of the existing action, the Bureau and Service will determine whether re-initiation of consultation is appropriate.

   b. Notwithstanding term and condition 1.a., the Bureau must immediately re-initiate formal consultation with the Service, pursuant to section 7(a)(2) of the Endangered Species Act, if 4 desert tortoises are found dead or injured in any 12-month period as a result of any activity or circumstance related specifically to casual use or livestock grazing, as described in this incidental take statement or the Biological Opinion. Given the analyses contained in the Biological Opinion regarding the potential effects of casual use and livestock grazing on the desert tortoise, we expect that the cause of any injury or death

resulting from these activities is likely to be reasonably identifiable. For example, desert tortoises that are killed or injured by livestock will show signs of trampling; individuals may also be trapped in cattle guards. Desert tortoises that are killed or injured as a result of casual use activities will most likely be crushed. We do not intend to attribute carcasses with no discernable cause of death to effects of livestock grazing or casual use activities.

2. The following term and condition implements reasonable and prudent measure 2:

The Bureau must offer information on the desert tortoise, its status, the protection it receives under the Endangered Species Act, and the actions that can be taken to avoid killing or injuring desert tortoises when working or recreating in the desert to anyone requesting information on casual use associated with recreation and mining. The Bureau must prominently post this information on the California Desert District website and maintain brochures, or other written materials, that provide this information in its offices and other locations, as appropriate.

REPORTING REQUIREMENTS

By January 31 of each year this biological opinion is in effect, the Bureau must provide a report to the Service that provides details on each desert tortoise that is found dead or injured as a result of livestock grazing or casual use activities. The report must include information on the location of each injury or mortality, the circumstances of the incident, and any actions undertaken to prevent similar instances from occurring in the future.

We request that the annual report also describe activities implemented by the Bureau in the previous year to promote the recovery of the desert tortoise. We also request that your annual report include information on any activities that the Bureau has undertaken that may have adversely affected or benefited the listed plant species under consideration in the Biological Opinion.

DISPOSITION OF DEAD OR INJURED DESERT TORTOISES

Within 3 days of locating a desert tortoise that may have been killed or injured as a result of livestock grazing or casual use, you must notify the Service's Division of Law Enforcement (370 Amapola Avenue, Suite 114, Torrance, California 90501) and the Ventura Fish and Wildlife Office by telephone (805-644-1766), electronic mail, or facsimile (805-644-3958). Your report must include the date, time, and location of the carcass or injured animal, a photograph, cause of death or injury, if known, and any other pertinent information.

The Bureau must ensure that injured animals are handled with care and provided effective treatment. Injured desert tortoises must be taken to a qualified veterinarian for treatment. If any injured desert tortoises survive, the Service must be contacted regarding their final disposition.

The Bureau must ensure that dead animals are preserved in the best possible state. The Bureau must endeavor to place the remains of the intact desert tortoises with educational or research institutions holding the appropriate State and Federal permits per their instructions. If such institutions are not available or the shell has been damaged, the Bureau must obtain the information noted above and the carcass left in place. The Bureau must make arrangements regarding proper disposition of potential museum specimens with the institutions as soon as possible. The U.S. Geological Survey (Kristin Berry, U.S. Geological Survey, 22835 Calle San Juan De Los Lagos, Moreno Valley, California 92553, 951-697-5361) may be an appropriate repository for dead desert tortoises.